

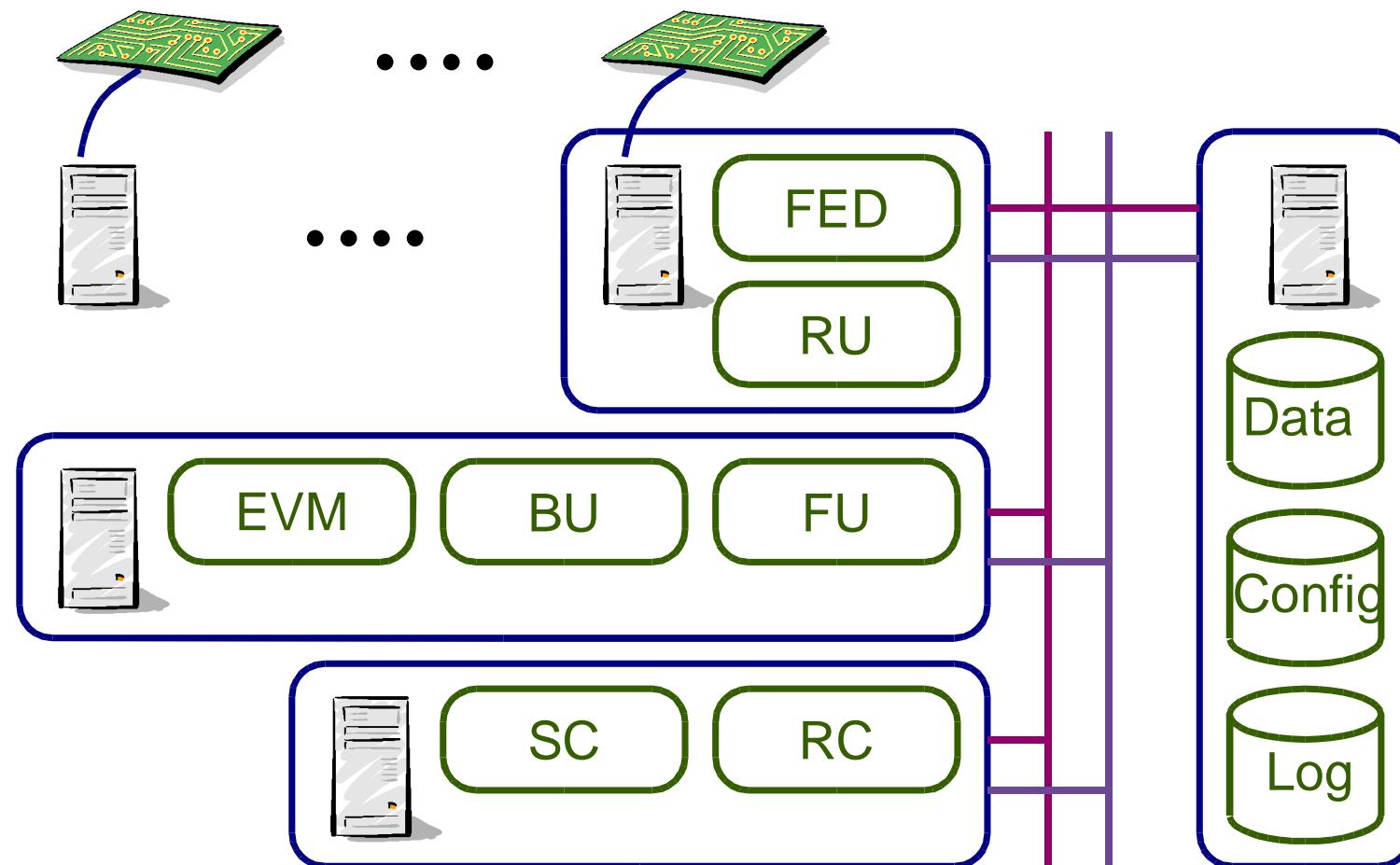
# *Common Software Components for the Slice Test DAQ*



Slice Test mtg., 2003/08/20

**Ichiro Suzuki**  
CD/CEPA/OAA  
Fermi National Accelerator Laboratory

# *Slice Test DAQ Components*



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# *Software Provided by the CMS DAQ group*

- XDAQ (L. Orsini, J. Guteleber)
  - ◆ DAQ framework (configuration, messaging)
  - ◆ DAQ toolkit (HAL, EVB, FU ...)
  - ◆ V1.3: Sep.'03 → V2.0: Dec.'03?
- RCMS (G. Maron)
  - ◆ Run control + monitoring + DBs
  - ◆ Preliminary implementation has already been used in the tracker beam tests
- DCS-PVSS (F. Glege)
  - ◆ Slow control toolkit

# *Additional Tools from the Fermilab EVM group*

- XDAQ control library
  - ◆ A Java class library to handle XDAQ SOAP messages
  - ◆ A building block for users XDAQ control applications (run control, test driver, ...)
- Generic FED framework
  - ◆ Interchangeable input/output to local disk at each connection in DDU-FED-EVB chain (flat or ROOT format)
  - ◆ Reusable code
    - ◆ among various DDUs (EMU, HCAL, Trigger)
    - ◆ among various systems (beam-test, slice-test, local)

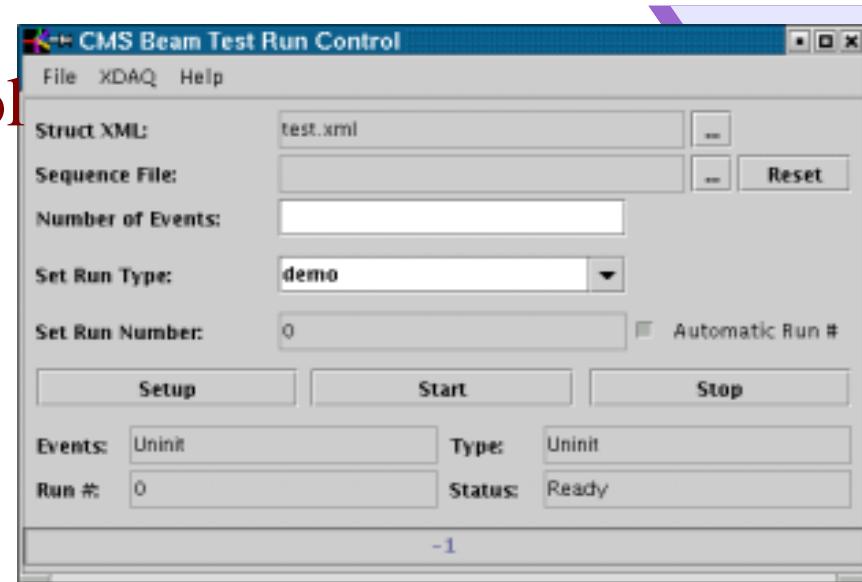
# *XDAQ Control Library*

- Simple to use

```
XDAQDocument xdaq = new XDAQDocument("sample.xml");  
xdaq.assignTargetIDs();  
xdaq.configureHost();  
xdaq.commandApplication("Configure");
```

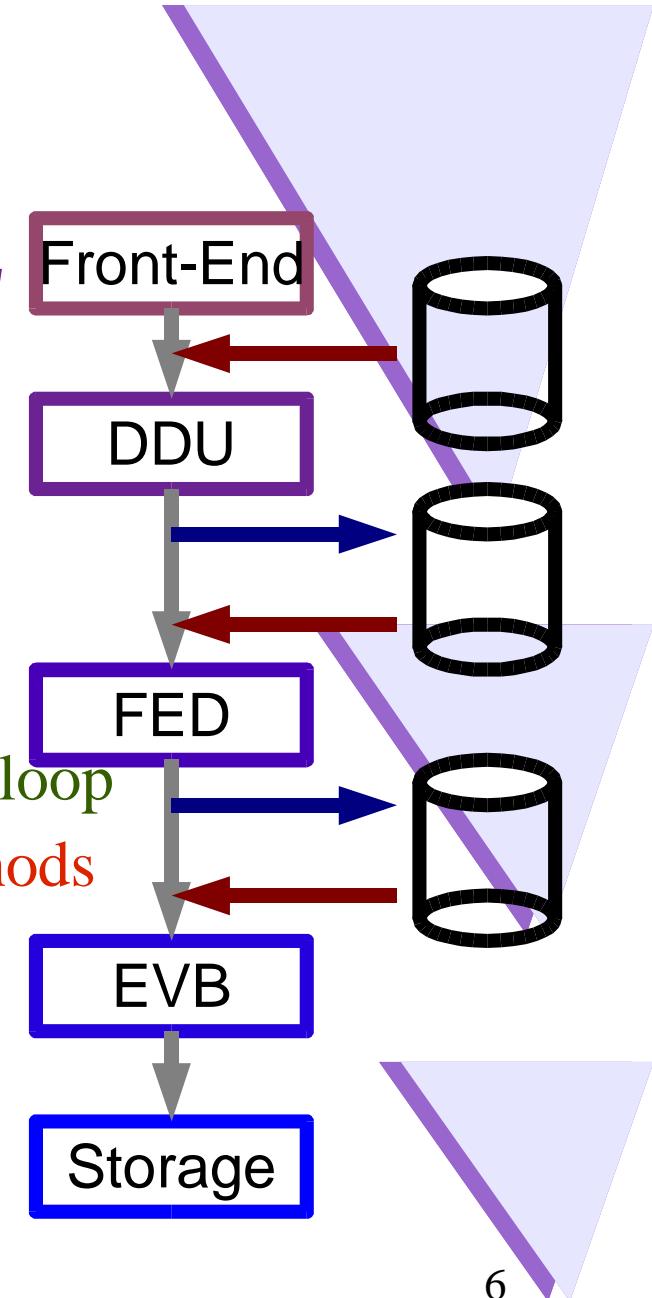
- Example application:  
HCAL test beam run control

- Accesses to the XDAQ executives via SOAP
- Accesses to slow control servers via DIM
- Accesses to the DB via JDBC

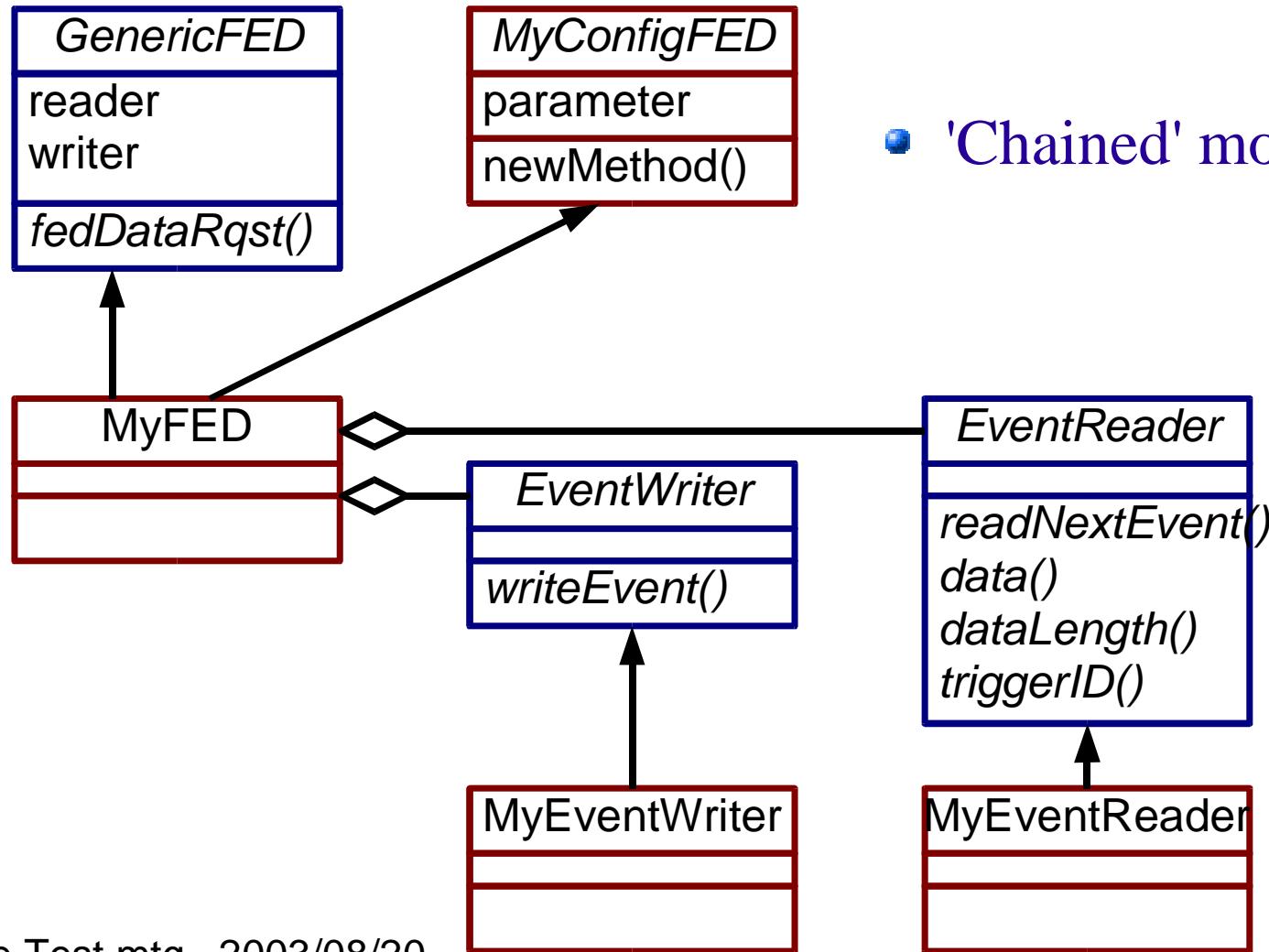


# *GenericFED: Decoupling of 'Generic' and 'Specific' parts*

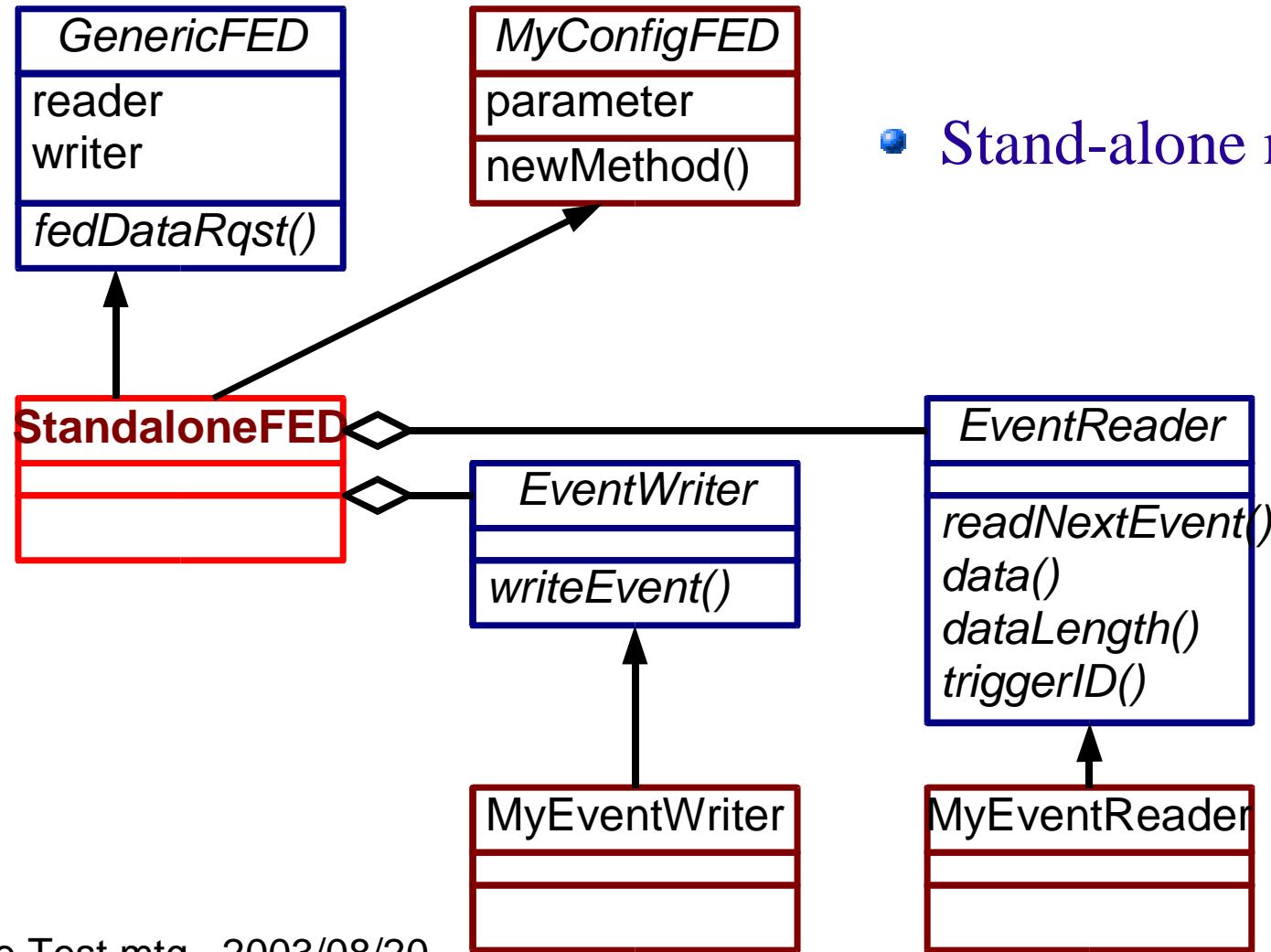
- DDU
  - ◆ Interface to the FED
  - ◆ Access to the real hardware
- FED
  - ◆ Interface to the EVB, read-format-send loop
  - ◆ Exported parameters, user-defined methods
- Input/Output
  - ◆ Interface to callers (FED, EVB)
  - ◆ Destination, format



# *GenericFED: Class Structure*



## *GenericFED: Class Structure (cont'd)*



- Stand-alone mode

# *GenericFED: Implementation*

- Snap-shot (Dec. '02) version of the new EVB was enhanced to deal with FED-RU messages.
- All classes/interfaces were implemented. ('GenericFED' works only with the new EVB.)
- Automated test suite (sample FED, stub EVB and scripts) was provided.
- 'Chained' version of the EMU dependent concrete classes were implemented and tested. (R.W.)

## *Status in the '03 Beam Tests*

- XDAQ V1.2 based DAQ
- HCAL
  - Custom FED + EVB
  - RC using XDAQ SOAP
  - Configuration DB
- EMU
  - XDAQ EVB
  - Generic FED



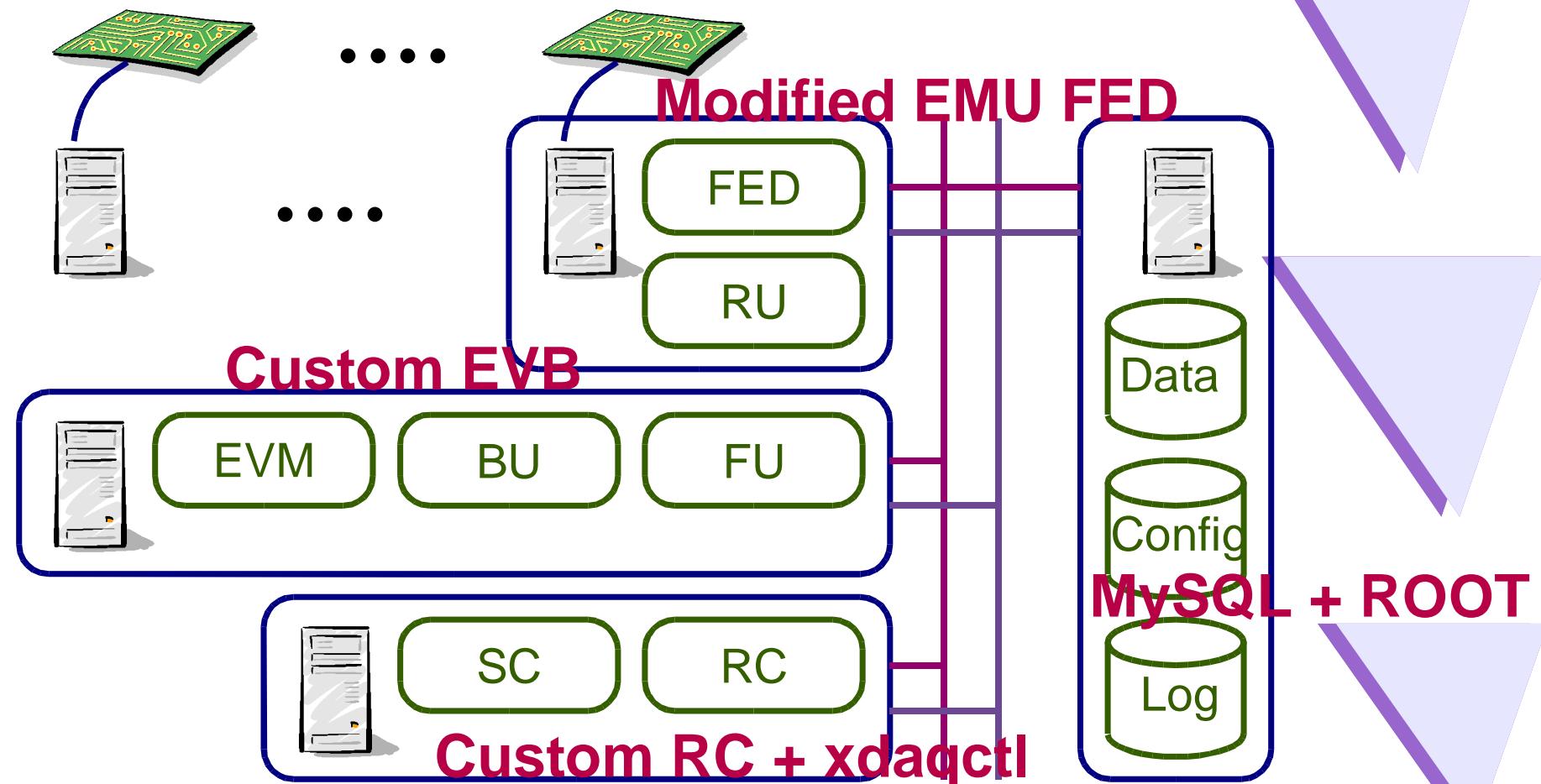
This is a collaboration with the EMU DAQ group  
(P. Murray, R. Wilkinson), the HCAL DAQ group (J. Mans)  
and the FNAL EVM group (D. Charak, I. Suzuki)

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# *Questions*

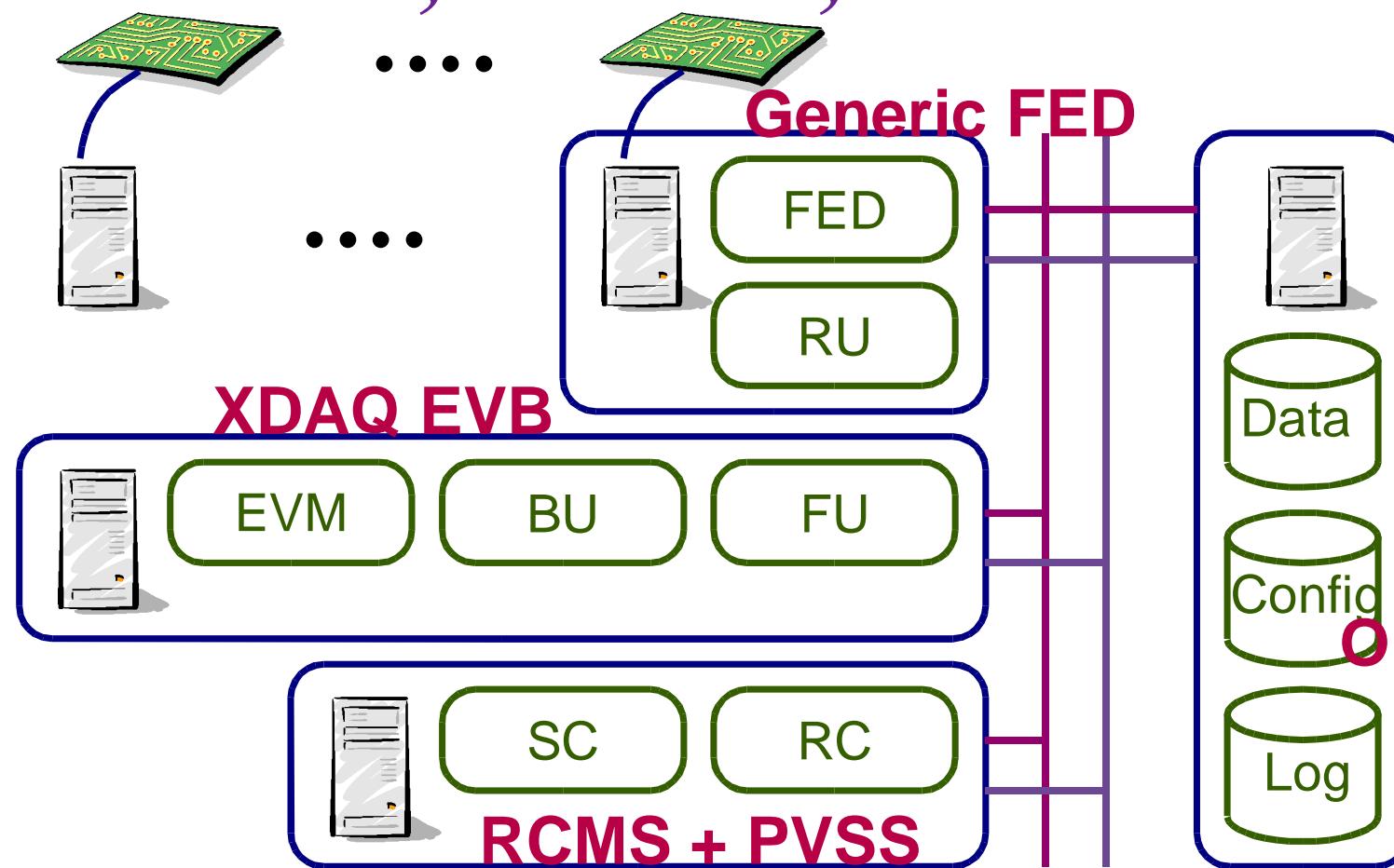
- Scope: How much do we develop by ourselves?
  - ◆ Already available components: XDAQ, EVB
  - ◆ Less clear: PVSS
  - ◆ Just started discussions: DB
- Schedule: How can we match US-CMS schedule with the CMS DAQ schedule
  - ◆ CMS DAQ **supports** slice test efforts.
  - ◆ No consideration on the slice test in their development schedule so far.
- We need to assess our software/schedule requirements soon (by the end of '03?)

# *Example System 1: Going My Way*



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## *Example System 2: Standard, Standard, Standard...*



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